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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,795	04/23/2002	Naomi Noda	WATK:233	1091

7590 09/17/2003

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EXAMINER
GREENE, JASON M

ART UNIT	PAPER NUMBER
1724	

DATE MAILED: 09/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/089,795	NODA ET AL.	
	Examiner	Art Unit	
	Jason M. Greene	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☒ Claim(s) *15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 April 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on JP 2000-240456, filed in Japan on 08 August 2000. It is noted, however, that a copy of the certified copy has not been received from the International Bureau. If a certified copy of the priority document was not provided to the International Bureau within 16 months of the priority date, Applicant must file a certified copy of the priority document as required by PCT Rule 17.1(c).

Claims

2. With regard to claim 15, the Examiner suggests Applicants change the word "is" in line 3 to the word "are" to correct a minor grammatical error.

Claim Objections

3. Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 15 recites the filter of claim 1 being used in a specific regeneration system. However, since claim 15 merely

recites an intended use of the filter of claim 1 without imposing any additional structural limitations on the filter, claim 15 does not further limit the subject matter of claim 1.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 10 recites the ceramic particles being loaded on the honeycomb in an amount of 5 to 250 grams per cubic centimeter of honeycomb volume. However, the Examiner notes that all of the ceramic materials recited in the specification have theoretical densities of less than 5 grams per cubic centimeter. Therefore, it is impossible for the ceramic particles to be loaded on the honeycomb as claimed since even the ceramic particles themselves cannot have a density greater than the theoretical density. Furthermore, the Examiner notes that since the specification also recites the ceramic particles being loaded on the honeycomb in an amount of 5 to 250 grams per cubic centimeter of honeycomb volume, amending the claim to recite a

different loading density (such as 5 to 250 grams per liter of honeycomb volume) would constitute new matter since there is no support for such an amendment in the disclosure as originally filed.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Published patent Application JP 9-220423 in view of European Published Patent Application EP 0 701 859 A1.

With regard to claims 1 and 2, JP 9-220423 discloses a ceramic-made filter for capturing the particulates present in the exhaust gas discharged from diesel engines, wherein a ceramic particles layer (4) made of heat-resistant ceramic particles is formed on a filter by coating so as to provide a support for a metallic catalyst and substantiality avoid the direct contact between the filter and the ash remaining and accumulating after the particulates captured by the filter have been burnt in Figs. 1 and 3 and paragraphs [0008] to [0021] of the English language translation.

JP 9-220423 does not disclose the heat-resistant ceramic particles having a BET specific surface area of 300 m^2/g or less.

EP 0 701 859 A1 discloses a catalyst carrier having a ceramic particles layer made of heat-resistant ceramic particles having a BET specific surface area of 50 m^2/g in page 3, lines 15-58.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the BET specific surface area of the ceramic particles of EP 0 701 859 A1 into the ceramic particles of JP 9-220423 to provide ceramic particles having an amply large surface area and an ability to disperse the metallic catalyst to a certain extent but not to an unduly high extent, as suggested by EP 0 701 859 A1 in page 3, lines 49-54.

With regard to claim 3, JP 9-220423 discloses 95 weight percent of the particles having an average diameter of 5 μm and 5 weight percent of the particles having a particle diameter of 28 μm in paragraphs [0008], [0011], [0019], and [0020] of the English language translation. Therefore the overall average particle diameter can be calculated to be 0.95 * 5 μm + 0.05 * 28 μm = 6.2 μm.

With regard to claim 4, JP 9-220423 teaches the heat-resistant ceramic particles being made of alumina in paragraphs [0011], [0014], [0019], and [0020] of the English language translation.

With regard to claims 5 and 6, JP 9-220423 teaches the heat-resistant ceramic particles being free of silicon and alkali metal in paragraph [0011] of the English language translation. Since JP 9-220423 teaches the ceramic particles being free of silicon and alkali metal, JP 9-220423 is seen as teaching the ceramic particles containing silicon in amount of 10 weight percent or less in terms of oxide and alkali metal in amount of 1 weight percent or less in terms of oxide.

With regard to claim 7, JP 9-220423 discloses the ceramic-made filter having a honeycomb structure wherein each cell of the honeycomb structure is sealed at either of the inlet and outlet ends of the honeycomb structure, and at each end of the honeycomb structure, each sealed cell end is surrounded by unsealed cell ends via cell walls in Fig. 1 and paragraphs [0016] and [0017] of the English language translation.

With regard to claim 8, JP 9-220423 discloses the ceramic particulate layer being formed by a single layer of the heat-resistant ceramic particles in Fig. 2. Since the ceramic particles are disclosed as having a diameter of 6.2 μm (as calculated above), the thickness of the ceramic particles layer is seen as being approximately 6.2 μm.

Additionally, one of ordinary skill in the art at the time the invention was made would have recognized the desirability of forming the ceramic particles layer as thin as possible since the ceramic particles layer was to be used as a catalyst support and any additional thickness beyond a since layer of the heat-resistant ceramic particles would provide no additional benefit. Therefore, one of ordinary skill in the art at the time the

invention was made would have known to form the ceramic particles layer such that it had a thickness well below 100 μm.

With regard to claim 9, JP 9-220423 discloses the cell walls forming each cell having a thickness of 0.45 mm (450 μm) in paragraph [0019] of the English language translation.

With regard to claim 10, JP 9-220423 discloses the heat-resistant ceramic particles constituting the ceramic particles layer being loaded in an amount of 20 grams per liter of honeycomb volume in paragraph [0013] of the English language translation. As noted above, while claim 10 recites the ceramic particles being loaded in an amount of 5-250 grams per cubic centimeter of honeycomb volume, it appears as though Applicants intended for the claims and disclosure to recite the ceramic particles being loaded in an amount of 5-250 grams per cubic centimeter of honeycomb volume.

With regard to claim 11, JP 9-220423 discloses the honeycomb structure having a cell density of 150 cells per square inch in paragraph [0019] of the English language translation.

With regard to claim 12, JP 9-220423 discloses the ceramic-made filter being made of cordierite in paragraph [0019] of the English language translation.

With regard to claims 13 and 14, JP 9-220423 discloses a catalyst component (the platinum group catalyst metal) being either mixed into the ceramic particles layer or coated on the ceramic particles layer in paragraph [0017] of the English language translation.

With regard to claim 15, JP 9-220423 discloses the ceramic-made filter being used in a system wherein the particulates captured on the filter are burnt and removed by a heated and a catalytic reaction in paragraphs [0002] and [0015] of the English language translation.

8. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Published patent Application JP 9-220423 in view of European Published Patent Application EP 0 701 859 A1 and Watanabe et al.

With regard to claims 16 and 17, JP 9-220423 discloses a process for producing a ceramic-made filter which comprises coating on the surface of a filter material made of a porous ceramic, a slurry containing at least heat-resistant ceramic particles and a binder at proportions satisfying the recited formulas to form a ceramic particulate layer in Figs. 1 and 3 and paragraphs [0008] to [0021] of the English language translation.

JP 9-220423 discloses the slurry containing 670g of the heat-resistant ceramic particles and 330g of a binder, wherein the binder is alumina-sol produced by Nissan Chemistry in paragraph [0020] of the English language translation. While JP 9-220423

is silent as to the composition of the alumina-sol, Watanabe et al. discloses alumina-sol produced by Nissan Chemistry having an alumina content of 10 weight percent in col. 5, lines 60-67. Since the alumina-sol comprises 10 weight percent alumina, the amount of binder solid (calculated as oxide) can be calculated to be 0.10*330g = 33g. Substituting this value into the recited equations yields 33g / (670g + 33g) = 0.047. Therefore, since $0.25 \geq 0.047 \geq 0.02$, the recited formulas are seen as being satisfied. The Examiner notes that the Watanabe et al. reference has been cited merely to establish the physical characteristics of the alumina-sol of JP 9-220423.

JP 9-220423 does not disclose the heat-resistant ceramic particles having a BET specific surface area of 300 m^2/g or less.

EP 0 701 859 A1 discloses a catalyst carrier having a ceramic particles layer made of heat-resistant ceramic particles having a BET specific surface area of 50 m^2/g in page 3, lines 15-58.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the BET specific surface area of the ceramic particles of EP 0 701 859 A1 into the ceramic particles of JP 9-220423 to provide ceramic particles having an amply large surface area and an ability to disperse the metallic catalyst to a certain extent but not to an unduly high extent, as suggested by EP 0 701 859 A1 in page 3, lines 49-54.

With regard to claim 18, JP 9-220423 teaches the binder being free of alkali metal in paragraph [0020] of the English language translation. Since JP 9-220423

teaches the binder being free of alkali metal, JP 9-220423 is seen as teaching the binder containing alkali metal in amount of 5 percent by weight or less in terms of oxide, relative to the binder solid in terms of oxide.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Schmidt, Jr. et al., Blum et al., Penth et al., Way et al., Noda et al., and EP 0 530 734 A1 references disclose similar filters.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (703) 308-6240. The examiner can normally be reached on Tuesday - Friday (7:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (703) 308-1261. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jason M. Greene
Examiner
Art Unit 1724

September 4, 2003
jmg

DUANE SMITH
PRIMARY EXAMINER
9-8-03